Nationwide Health Information Network (NHIN)

Profile Definition

Geocoded Interoperable Population Summary Exchange (GIPSE)

V 1.0

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Contributors

Name	Organization	NHIE represented
Brian Dixon	Regenstrief Institute	Indiana Network for Patient Care

Document Change History

Version	Date	Changed By	Items Changed Since Previous Version
1.0	9/3/2009	Brian Dixon	Initial Draft
	10/14/2009	Brian Dixon	Updated Section 2.5.1 to say that GIPSE does use WS-Reliable Messaging

Document Approval

Version	Date	Approved By	Role

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1 Preface

1.1 Introduction

This document defines an NHIN profile for the exchange of Geocoded Interoperable Population Summary Exchange (GIPSE) data. GIPSE is a data format created by the U.S. Centers for Disease Control and Prevention (CDC) to allow the electronic exchange of health condition/syndrome summary data that has been stratified by a number of variables, including geography. GIPSE data will be utilized by public health agencies in the U.S. to conduct situational awareness, including early event detection and monitoring, for potential public health events.

1.2 Intended Audience

This document is designed for NHIEs that intend to exchange GIPSE data files with other NHIEs and/or public health agencies, including the CDC. The document profiles how the NHIN interface specifications, such as Health Information Event Messaging (HIEM), can be used to exchange GIPSE data.

1.3 Focus of this Profile

This document does not define GIPSE, nor does this document provide details on how NHIEs and public health agencies should collect, store, or format GIPSE data for exchange. For guidance on gathering, creating, storing, and formatting GIPSE data files, please refer to documentation published by the CDC National Center for Public Health Informatics (NCPHI).

This document describes how GIPSE files can be exchanged using the Nationwide Health Information Network (NHIN). The NHIN infrastructure and technical specifications allow for the exchange of several data types, including GIPSE. This document profiles how two NHIEs can exchange GIPSE data files.

1.3.1 Business Needs Supported

Currently the CDC has focused GIPSE on the exchange of data to support the HHS Biosurveillance Use Case (http://www.hhs.gov/healthit/usecases/documents/BiosurveillanceUtilizationUseCase.pdf) with a focus on Influenza, Influenza-Like Illness (ILI), and Pneumonia. Subsequent public health evaluation and use may result in modifications to GIPSE's initial design, including the data elements and their valid values, grouping, etc., and indicator classifications. Users of this profile will need to consider updated and newly published versions of GIPSE when implementing this profile.

1.3.2 NHIN Interface Specifications Referenced by this Profile

This profile utilizes the following NHIN Specifications:

- The Health Information Event Messaging (HIEM) Service Specification

The latest specification documents can be found at http://healthit.hhs.gov.

1.4 Related Documents

The following documents and standards were referenced during the development of this specification:

- GIPSE File Implementation Guide, Version 1.0, Centers for Disease Control and Prevention

- NHIN Trial Implementations: Biosurveillance Use Case Requirements Document http://healthit.hhs.gov/portal/server.pt/gateway/PTARGS_0_10731_848167_0_0_18/Biosurveillance_Use_Case_v1.0%20%20043008.pdf

1.5 Relationship to HITSP Constructs

The GIPSE Profile supports the implementation of near real-time, nationwide public health event monitoring to support early detection, situational awareness and rapid response management across care delivery, public health, and other authorized government agencies. Currently the GIPSE data format is not directly linked to the HITSP Biosurveillance Interoperability Specification (IS02), but its use supports the same class of activities and transactions.

1.6 Relationship to NHIN Documents

The GIPSE Profile is implemented using the Health Information Event Messaging Service Interface Specification. This specification can be found at http://healthit.hhs.gov.

The GIPSE Profile was created using guidance provided in the NHIN Profile Framework. This framework can be found at http://healthit.hhs.gov.

2 Profile Definition

2.1 Definition

GIPSE is a data format created by the U.S. Centers for Disease Control and Prevention (CDC) to allow the electronic exchange of health condition/syndrome summary data that has been stratified by a number of variables, including geography. GIPSE data will be utilized by public health agencies in the U.S. to conduct situational awareness, including early event detection and monitoring, for potential public health events.

2.2 Topic Definition

This profile utilizes a topic tree. The topic tree defines all of the available topics and sub-topics to which an NHIE can subscribe. The topic tree further provides guidance on the expected formats for payloads that will be embedded in notification messages.

This profile utilizes the following topic tree:

- **DeidentifiedPopulationHealthData [Root Node]**
  This is a high level concept that represents all de-identified population health data. This node identifies that the subscription or notification message pertains to the broad category of de-identified population health data.

  - **Biosurveillance [Child of DeidentifiedPopulationHealthData]**
    The monitoring and detection of population health outbreaks is a primary function of public health agencies. This node represents the class of concepts that relate to biosurveillance data and functions of interest to public health entities.

    - **InfluenzaLikeIllness [Child of Biosurveillance]**
      Any illness that looks like influenza but has not been confirmed as such via laboratory testing is normally classified as an "influenza-like illness." GIPSE files may contain a number of influenza-like illness indicators. This sub-topic represents that class of indicators.

    - **Influenza [Child of Biosurveillance]**
      A known (via lab results) or strongly suspected diagnosis of influenza. GIPSE files may contain a number of influenza indicators. This sub-topic represents that class of indicators.

    - **Pneumonia [Child of Biosurveillance]**
      GIPSE files may contain a number of pneumonia indicators. This sub-topic represents that class of indicators.

Here is an expression of the DeidentifiedPopulationHealthData topic tree in the NHIN Namespace:

```
<wstop:TopicNamespace targetNamespace="http://www.hhs.gov/healthit/nhin"
  xmlns:wstop="http://docs.oasis-open.org/wsn/t-1"
  xmlns:nhin="http://www.hhs.gov/healthit/nhin"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  xmlns:phgrid="http://ncphi.phgrid.net/schemas"

  <wstop:Topic name="DeidentifiedPopulationHealthData">
    <wstop:Topic name="Biosurveillance">
      <wstop:Topic name="InfluenzaLikeIllness" messageTypes="phgrid:gipse"/>
      <wstop:Topic name="Influenza" messageTypes="phgrid:gipse"/>
```

```
      <wstop:Topic name="Pneumonia" messageTypes="phgrid:gipse"/>
    </wstop:Topic>
  </wstop:Topic>

</wstop:TopicNamespace>
```

The complete NHIN Namespace is available at http://healthit.hhs.gov.

The GIPSE schema is available at http://ncphi.phgrid.net:8080/schemas/gipse. The Namespace where GIPSE is to ultimately reside has not yet been determined.

2.3 Subscription
This section outlines how an NHIE subscribes to receive published GIPSE data files.

2.3.1 TopicExpression Filters
Subscribing to GIPSE data files relies principally on the base specification for Health Information Event Messaging (HIEM). To create a subscription request, the subscriber must create a valid HIEM message and indicate the appropriate GIPSE topics and sub-topics. This requires the use a <Filter> element in which the subscriber provides a <Topic Expression> definition. The <Topic Expression> for GIPSE should contain the following:

- The dialect for GIPSE is "Concrete," which is also the default dialect for HIEM.
- A single, fully qualified topic or sub-topic defined above in Section 2.2.

2.4 Notification
Notification messages will contain GIPSE data file payloads. This means that when new GIPSE data files are published they will be "pushed" to subscribers. The determination for a "push" paradigm is based on public health's desire to regularly consume data feeds participating in the national public health grid.

2.5 Additional Considerations
This section provides additional considerations and special constrains placed on GIPSE-related messages.

2.5.1 Web Service Reliable Messaging
GIPSE currently uses Web Services Reliable Messaging (WS-RM).

2.5.2 Unsupported Topics or Sub-Topics
GIPSE remains a work-in-progress, likely to evolve over time. NHIEs may not support all of the topics and sub-topics provided for in this document or the GIPSE base definition document authored by the CDC. Therefore subscribers should anticipate the possibility of receiving a fault message in response to their subscription message. All NHIEs should return a fault message when they reject a subscription request because of an unsupported or unrecognized topic or sub-topic.

3 Sample Messages

These samples demonstrate subscribe and notify message structure with empty content. Comments within the XML show where actual content should be placed.

The SOAP addressing is shown in the Notify message to demonstrate how the Endpoint References from other messages are used to address these messages.

3.1 Sample Subscribe

```
<wsnt:Subscribe xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2"
    xmlns:wsa="http://www.w3.org/2005/08/addressing"
    xmlns:nhin="http://www.hhs.gov/healthit/nhin">

    <wsnt:ConsumerReference>
        <!-- this is the endpoint to notify -->
        <wsa:Address>https://csnhintiapps03.cgifederal.com:6151/Subscribe
        </wsa:Address>
        <wsa:ReferenceParameters>
            <nhin:UserAddress a:IsReferenceParameter="true">
                lee.morgan@carespark.com
            </nhin:UserAddress>
        </wsa:ReferenceParameters>
    </wsnt:ConsumerReference>

    <wsnt:Filter>
     <wsnt:TopicExpression Dialect="http://docs.oasis-open.org/wsn/t-1/TopicExpression/Concrete">
        nhin:DeidentifiedPopulationHealthData/Biosurveillance/InfluenzaLikeIllness
     </wsnt:TopicExpression>
    </wsnt:Filter>

</wsnt:Subscribe>
```

3.2 Sample Notify

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/"
    xmlns:a="http://www.w3.org/2005/08/addressing"
    xmlns:wsnt="http://docs.oasis-open.org/wsn/b-2"
    xmlns:nhin="http://www.hhs.gov/healthit/nhin">

    <s:Header>
        <a:Action s:mustUnderstand="1"
>http://docs.oasis-open.org/wsn/bw-2/NotificationConsumer/Notify</a:Action>
        <a:MessageID>urn:uuid:a02ca8cd-86fa-4afc-a27c-616c183b2055</a:MessageID>
        <a:To s:mustUnderstand="1"> https://csnhintiapps03.cgifederal.com:6151/Subscribe</a:To>
        <nhin:UserAddress a:IsReferenceParameter="true>
          lee.morgan@carespark.com
        </nhin:UserAddress>
    </s:Header>
    <s:Body>
      <wsnt:Notify>

        <wsnt:NotificationMessage>
          <wsnt:SubscriptionReference>
              <a:Address> http://www.nchica.org/SubscriptionManager</a:Address>
                <a:ReferenceParameters>
                  <nhin:SubscriptionId>382dcdc7-8e84-9fdc-8443-48fd83bca938
                  </nhin:SubscriptionId>
                </a:ReferenceParameters>
          </wsnt:SubscriptionReference>

          <wsnt:Topic Dialect="http://docs.oasis-open.org/wsn/t-1/TopicExpression/Concrete">
            nhin:DeidentifiedPopulationHealthData/Biosurveillance/InfluenzaLikeIllness
          </wsnt:Topic>
```

```
        <wsnt:Message>
          <!-- GIPSE report content goes here  -->
        </wsnt:Message>
      </wsnt:NotificationMessage>

    </wsnt:Notify>
  </s:Body>
</s:Envelope>
```